



UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/586,493	06/02/00	LEE	S D-30207-01

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IM22/0112

EXAMINER

BAGWELL, M

ART UNIT	PAPER NUMBER
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1711

DATE MAILED:

01/12/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/586,493

Applicant(s)

LEE ET AL.

Examiner

Melanie D. Bagwell

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claims ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. Claims 1-5, 7-12 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Sakamoto et al.
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 1 is drawn to a foam comprising a blend of low density polyethylene with an ethylene polymer having a density of 0.94-0.97 g/cm³ and a melt flow index greater than 10 g/10 minutes. Claims 2-3 further limit the melt flow index, claim 4 further limits the density of the ethylene polymer, claim 5 limits the concentrations of polymers in the blend, and claims 6-7 limit the foam properties. Claim 8 is drawn to a method of making foam by blending low density polyethylene with an ethylene polymer, adding a blowing agent, and expanding the blowing agent to form a foam. Claims 9-10 further limit the melt flow index, claim 11 limits the density of the ethylene polymer, claim 12 limits the concentrations of polymers in the blend, and claims 14-15 limit the foam properties.

4. Sakamoto discloses a polymer blend foam comprising high-pressure low-density polyethylene (HP-LDPE) and high-density polyethylene (HDPE) (col. 3 lines 11-31). In this case, HDPE serves as an ethylene homopolymer having a density of 0.945-0.961 g/cm³ and a melt flow index of 0.15-20 g/10 minutes (col. 4 lines 2-5). Thus, one would

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clearly envision choosing a polymer having a melt flow index greater than 10, 12, or 15 g/10 minutes from the indicated range of 0.15-20 g/10 minutes. The products exhibit high expansion ratios for small-diameter foams. Examples show the blend incorporating from 50% (example 3) to ~83% (example 4) by weight of HP-LDPE with 50% to 17% by weight HDPE.

5. To form the foams of the invention, Sakamoto uses a method of blending the polymer components with a chemical blowing agent and extruding the material into the air to expand the blowing agent and form a foam (col. 1 lines 27-42). However, the reference does not mention the density of the formed foam. The density of the foam is thought to result from the chosen polymer components and foaming method. Since the method and polymer components of the reference closely resemble those of the applicant's examples, it is the examiner's position that the foams of Sakamoto's invention inherently possess the applicant's claimed density.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-5 and 7-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto et al.

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8. Sakamoto applies as above, giving a melt flow index range including the applicant's claimed melt flow index range but failing to exemplify such polymers having the claimed melt flow indexes. However, it is the examiner's position that it would have been prima facie obvious to choose HDPE polymers having melt flow indexes greater than 10, 12, or 15 g/10 minutes in the expectancy of forming foams of equally high expansion ratios and small diameter.

9. Claims 13-14 limit the formed foam to a foam sheet with a maximum thickness of 100 mm. Sakamoto applies as above for a method of foaming by expanding a polymer blend, lacking express mention of forming a foam sheet. Sakamoto's invention is drawn to small-diameter foam tubes (examples indicate 0.7 mm diameters) formed for cable insulation. However, insulative foam sheets are conventionally formed by extrusion processes for applications other than cable wires. Therefore, it is the examiner's position that it would have been prima facie obvious to form thin, insulative foam sheets using the foam process of Sakamoto's teaching to provide insulation for applications other than cable wires.

10. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto et al. in view of the applicant's admitted prior art.

11. Claim 6 limits the foaming method to include extruding the blend and blowing agent into a region of reduced pressure. Sakamoto applies as above for a method of foaming by expanding a polymer blend, lacking express mention of extruding the blend into a region of reduced pressure. The applicant discloses an extrusion method

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including a step of extruding into a region of reduced pressure as a conventional process for forming LDPE/HDPE foams (p. 7 lines 18-30). Thus, it is the examiner's position that it would have been prima facie obvious to extrude into a region of reduced pressure by conventional teaching to produce a foam with equally high expansion ratio.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie D. Bagwell whose telephone number is (703)308-6539. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (703)308-2462. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9310 for regular communications and (703)872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)872-9309.

mdb
January 10, 2001


James J. Seidleck
Supervisory Patent Examiner
Technology Center 1700